CHAMELEON SERIAL UPGRADE UTILITY NOTES

Model	Chameleon CTM-15X Modem
Revision	1.4

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1 Contents

1 Contents 2
2 Revision Control 2
3 Overview 2
4 Chameleon Serial Upgrade Utility 2
5 Operation 3
6 Technical Support/Warranty 11

2 Revision Control

Description	Revision	Date
Customer Release	1.0	26-January-2010
Updated for version 2.2 and updated steps for verifying firmware upgrade is complete.	1.1	09-March-2010
Emphasize important step in verifying firmware upgrade is complete (Section 5, Step 7)	1.2	24-March-2010
Updated for updated full factory reset command	1.3	6-August-2010
Remove deprecated message	1.4	8-February-2011

3 Overview

The Chameleon Serial Upgrade Utility was developed specifically to provide an upgrade path to upgrade modems from older versions of firmware based on the Snapgear Linux distribution to the latest OpenWrt based Linux distribution. In most cases, this need for this upgrade will be a rare occurrence.

4 Chameleon Serial Upgrade Utility

The Chameleon Serial Upgrade Utility is a Windows application for use with the Chameleon CTM-15X series of cellular wireless data modems. It provides a mechanism for loading new embedded firmware with new application features into a modem that is locally accessible via its Ethernet and serial ports.

IMPORTANT…PLEASE READ

For upgrading firmware prior to R1.3.X (ie, R1.2.0, R1.2.2) to R1.3.X, use the *Chameleon Serial Upgrade* utility version 2.0, as described in this document and available on our website

For upgrading firmware prior to R1.3.X (ie, R1.2.0, R1.2.2) use the *Chameleon Upgrade* utility version 1.2, which can be downloaded from our website.

For upgrading firmware from R1.3.X to other versions of R1.3.X, use the modem's embedded Web page (CTM Config | Upgrade) or the *upgradefw* command.

Requirements:

- Physical/local access to the CTM-15X modem to be upgraded
- CTM-15X firmware version R1.1.29_2 and above
- Chameleon Serial Upgrade version 2.0 and above
- PC with both serial port and Ethernet jacks
- A Windows Telnet client (installed by default on most PCs; may need to be installed on others)
- Windows 98, 2000, XP , Vista, 7

Installation:

Open the zip file and extract the ***ChameleonSerialUpgrade.exe*** file to a directory of your choice. The Chameleon Serial Upgrade Utility is an executable file which is run simply by double clicking on the file name.

5 Operation

Before performing this upgrade, disable all firewall software on your PC. DO NOT remove power from the modem during this upgrade process.

Step 1: Download the firmware image file from the Cypress Solutions website

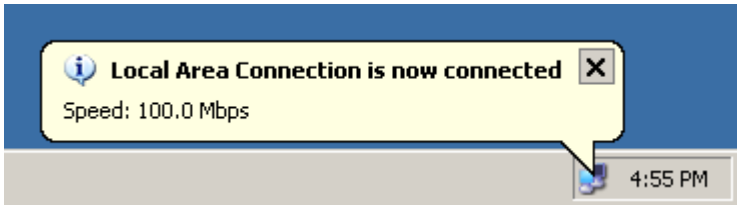
From the Cypress Solutions website, select and download the appropriate file for your modem, and save the <CTM15n_Rn_n_n.*bin*> upgrade file to a directory of your choice.

Step 2: Connect Ethernet and serial ports of the modem to the PC

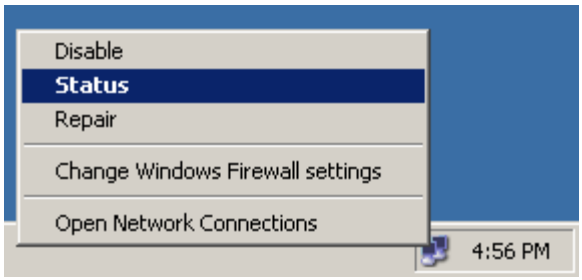
Connect the Ethernet ports of the modem and the PC directly via an Ethernet cable. Also, connect the serial ports of the modem and the PC directly via a serial cable.

Step 3: Set up the PC to use a static IP for its LAN connection to the modem

Upon connecting the modem's Ethernet port to your PC's Ethernet port, Windows will display a notice in the notification area of the Windows taskbar.



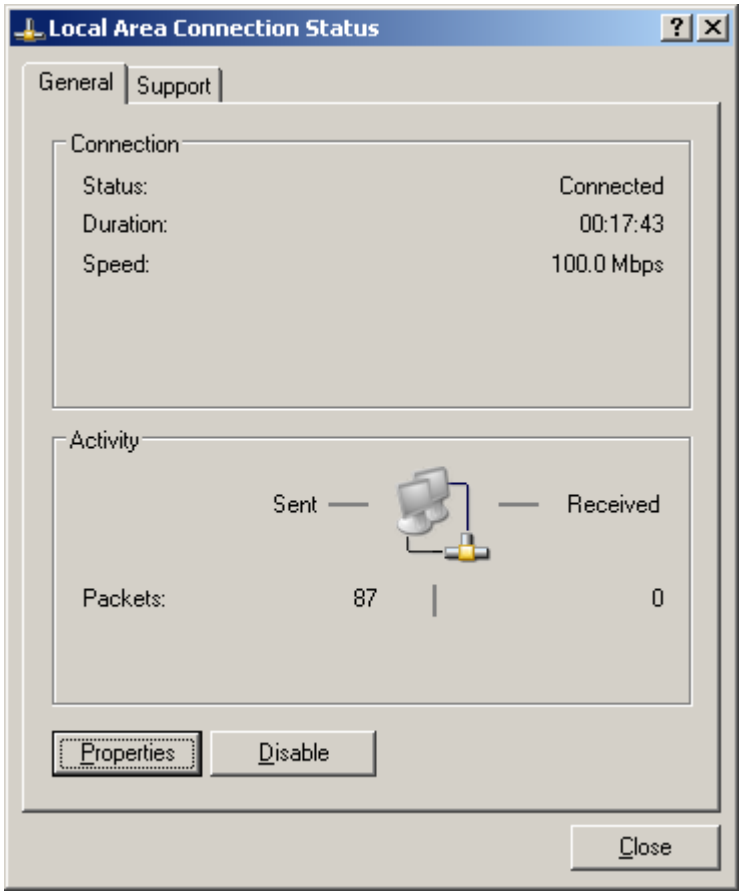
In the Windows taskbar notification area, right-click on the LAN connection icon and select **Status**.



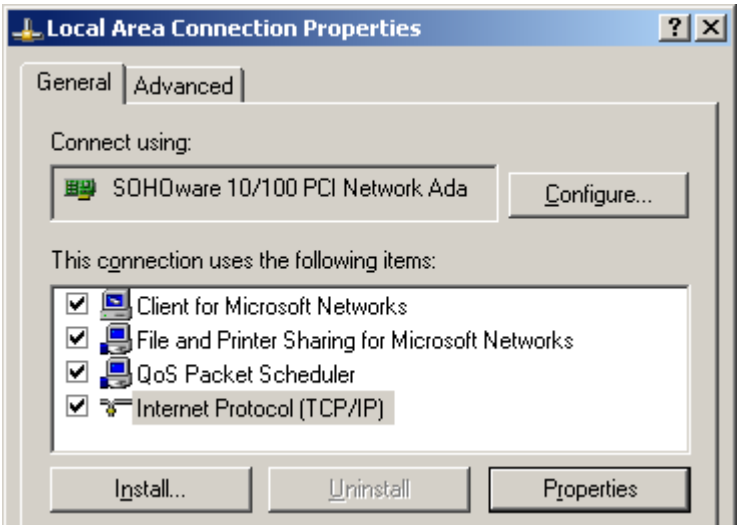
On some PCs, the **Local Area Connection** (or similarly named connection) has not been configured to show an icon in the Windows taskbar. If this is the case, you can access the connection from the Windows Start Menu.

For Windows 98, 2000, or XP navigate to **Start/Control Panel (Classic View)/Network Connections** and right-click on the Local Area Connection corresponding to the Ethernet port connected to the modem.

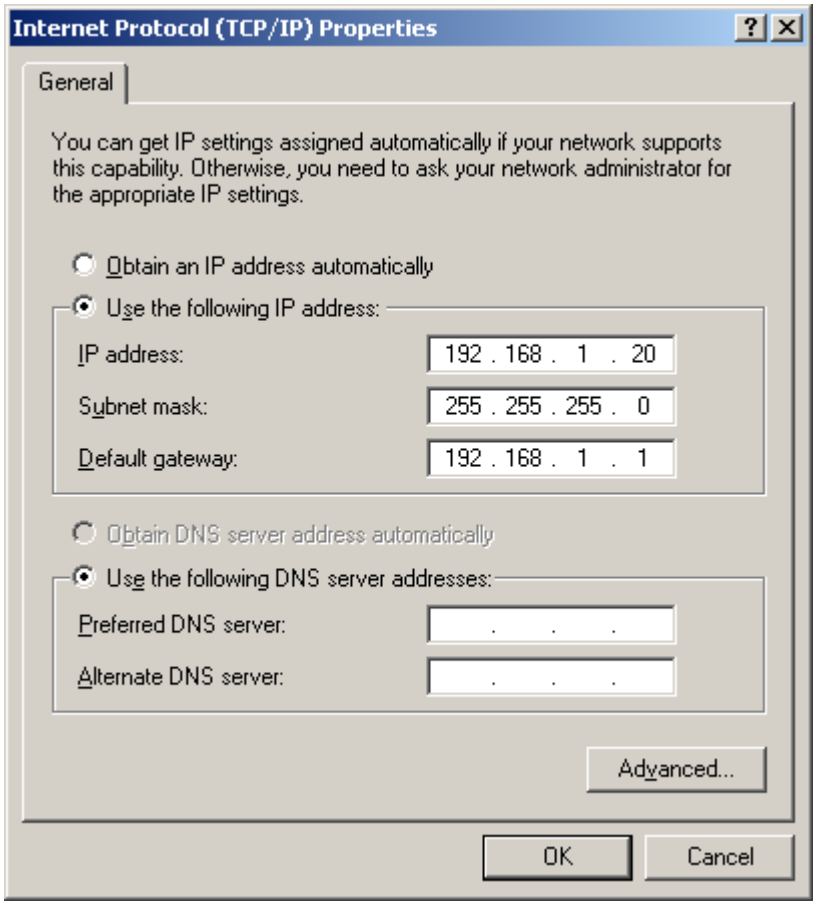
For Windows Vista, or 7 navigate to **Start/Control Panel (Classic View)/Network and Sharing Center** and click on **Status** for the Local Area Connection corresponding to the Ethernet port connected to the modem.
Under the **General** tab, select **Properties**.



Under the **General** tab, scroll down the list of items, select ***Internet Protocol (TCP/IP)*** (Windows Vista , or 7: ***Internet Protocol version 4 (TCP/IPv4)***) and click on **Properties**.



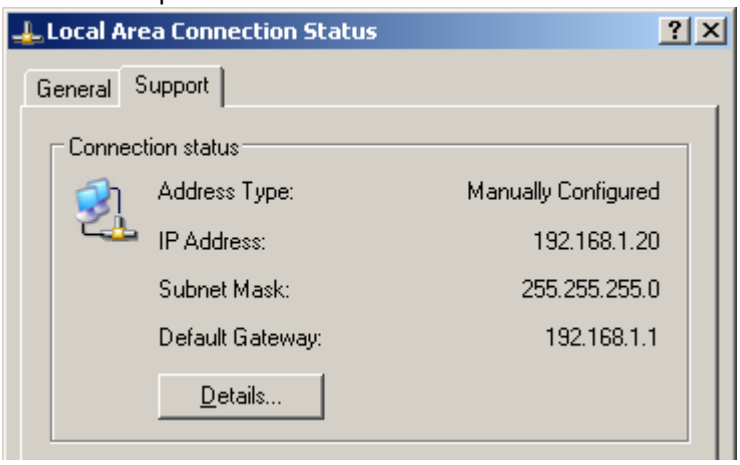
Enter the following information into the **Internet Protocol (TCP/IP) Properties** and click **OK**.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 1 . 20
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 1 . 1
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Note that in the **Internet Protocol (TCP/IP) Properties** the DNS server addresses under ***Use the following DNS server addresses*** do not need to be filled in.

Click **OK** to close the **Local Area Connection Properties**.

In the **Local Area Connection Status** window, click on the **Support** tab and verify that the ***Address Type*** is Manually Configured and that the ***IP address***, ***Subnet Mask***, and ***Default Gateway*** match the corresponding values shown in the previous screenshot.



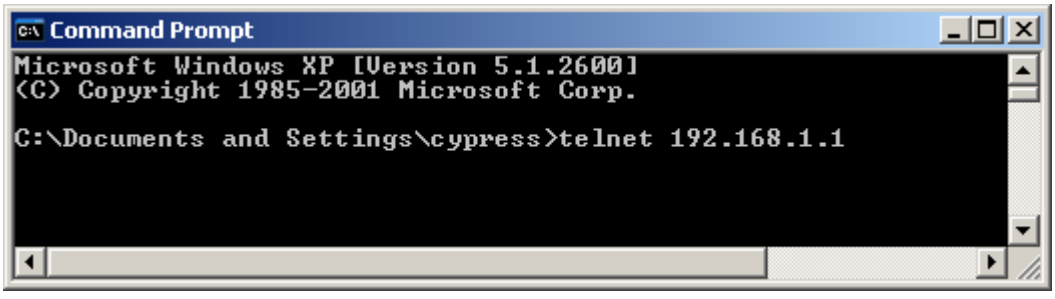
Click **Close** to close the **Local Area Connection Status** window. Your PC is now configured to use a static IP address of **192.168.1.20** for its Ethernet connection with the modem. From the PC, the modem can now be accessed at the local IP address of **192.168.1.1**.

Step 4: Determine the current firmware version

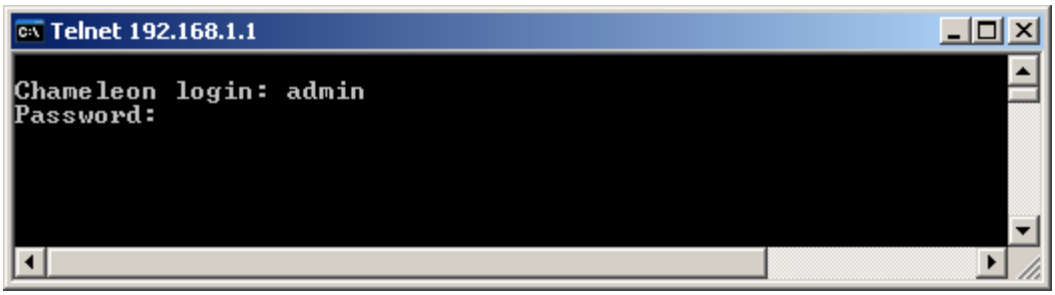
Access the Windows Command Prompt from the Windows Start Menu:
Start/All Programs/Accessories/Command Prompt

When in the Windows Command Prompt, Telnet into the modem at its local IP address by entering the command: **telnet 192.168.1.1**

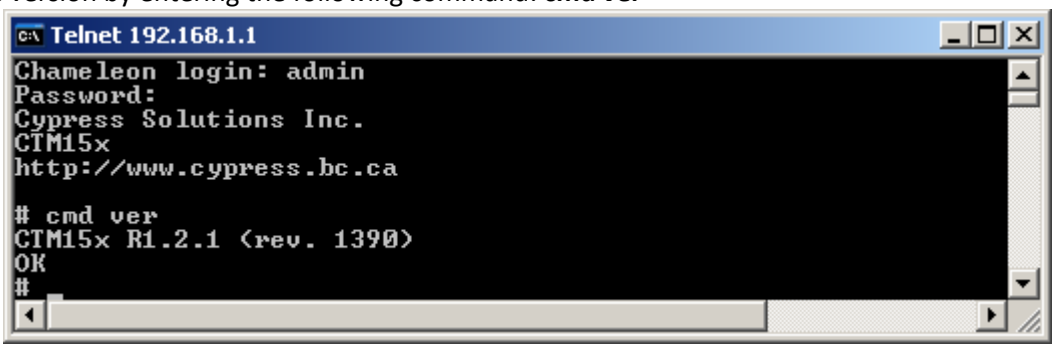
The CTM-15X will respond with its login prompt.


Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\cypress>telnet 192.168.1.1

At the login prompt, type in **admin** (default user name). At the password prompt type in **Chameleon** (default password, case sensitive). The password will not be visible when typed into the prompt.



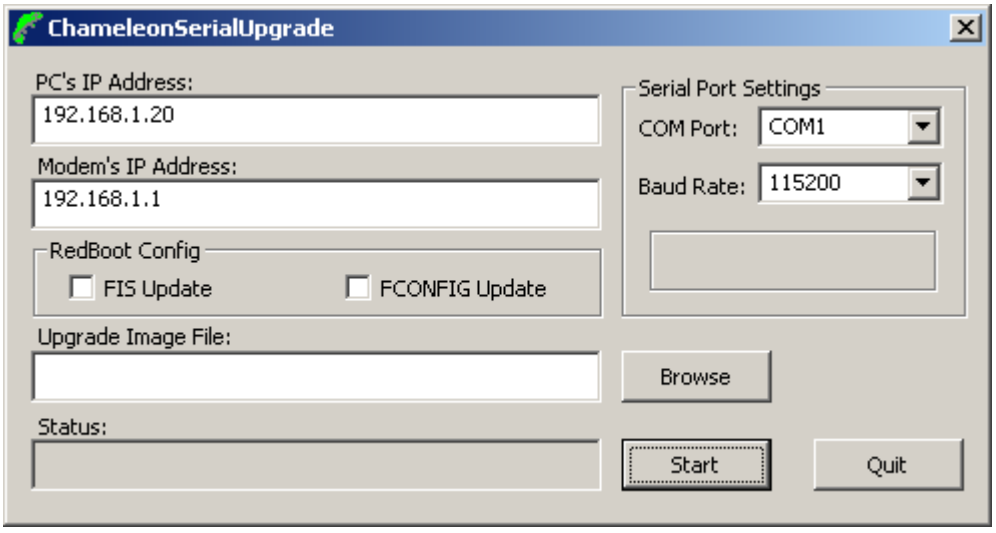
A **#** prompt (R1.2.X and below) or **/ #** prompt (R1.3.X and above) will be displayed indicating you now have access to the device command line interface. At the prompt, to determine the modem's current firmware version by entering the following command: **cmd ver**



To end the local Telnet session, type **exit** at the prompt.

Step 5: Configure and run the Chameleon Serial Upgrade Utility

Run the Chameleon Serial Upgrade Utility.



In the ***PC's IP Address*** field enter 192.168.1.20 (default).
In the ***Modem's IP Address*** field enter 192.168.1.1 (default).
Select the proper ***Serial Port Settings***. Note that the baud rate refers to that configured in the RedBoot boot loader (default baud rate is 115200).

Select the ***RedBoot Config*** options based on the following table:

Old	New	FIS Update	FCONFIG Update
R1.2.X and below	R1.3.X and above	Checked	Checked
R1.3.X and above	R1.2.X and below	Checked	Checked
R1.2.X and below	R1.2.X and below	Unchecked	Unchecked
R1.3.X and above	R1.3.X and above	Unchecked	Unchecked

Select the firmware image file to use for the upgrade:
1. Type the path and filename in the space provided, or
2. Click the **Browse** button to bring up a dialog to select the firmware image (.BIN) file

The ***Status*** field near the bottom of the tool will give you feedback on the firmware upgrade progress.

Click the **Start** button. Click the button **once** only. When the Chameleon Serial Upgrade utility is ready waiting for the next step, the ***Serial Port Settings*** will display “CONNECTED” and the ***Status*** field will display "Entering into download mode".

Step 6: Power cycle the modem to begin the firmware upgrade

Power cycle the CTM-15X modem to begin the upgrade process.

Power cycling the modem can be done in one of two ways:

- Physically disconnect and reconnect the power cable.
- As described in Step 4, open a Telnet session to the modem and enter the command:
  cmd pwrmode 2
  After the power cycle, the Telnet session will disconnect.

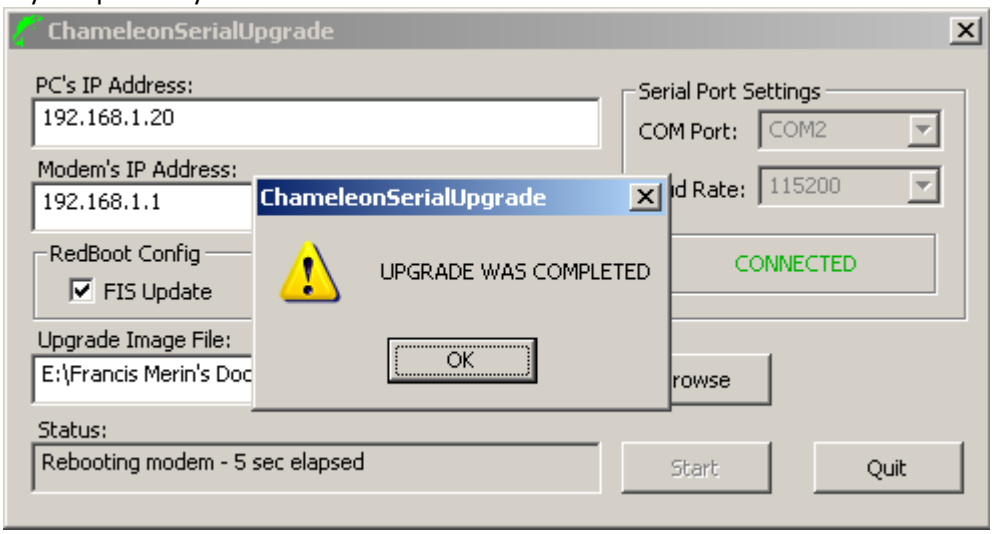
When the Chameleon Serial Upgrade Utility has detected the power cycle, the ***Status*** field will display “Waiting For RedBoot prompt”. Then, the Chameleon Serial Upgrade Utility will return one or more of the following messages in the ***Status*** field (some messages are only shown when ***FIS Update*** or ***FCONFIG Update*** options are checked):

- Setting IP
- Unlocking flash
- Initializing fis partition (***FIS Update*** only)
- Creating unused1/zImageTmp partition (***FIS Update*** only)
- Creating unused2/ramdiskTmp partition (***FIS Update*** only)
- Creating config partition (***FIS Update*** only)
- Creating Flash partition (***FIS Update*** only)
- Creating nvsnf partition (***FIS Update*** only)
- Loading zImage file
- Uploading zImage [x] Bytes
- Creating zImage partition
- Loading rootfs/ramdisk file
- Uploading rootfs/ramdisk [x] Bytes
- Creating rootfs/ramdisk partition

- Creating FreeSpace partition (**R1.2.X and below** only)
- Setting fconfig (***FCONFIG Update*** only)
- Rebooting modem
- Upgrade complete

If an error occurs anywhere in the upgrade procedure, the Chameleon Serial Upgrade utility will display an error message pop-up and the ***Status*** field will display "Update unsuccessful".

When the upgrade has completed successfully, a notice will be displayed and the Chameleon Serial Upgrade utility will power cycle the modem.



When the upgrade process is complete, the ***Serial Port Settings*** will display "DISCONNECTED" and the ***Status*** field will show "Upgrade complete". Click the **Quit** button to close the Chameleon Serial Upgrade utility.

Step 7: Use serial console to verify upgraded firmware version, factory reset, and save configuration

After the modem power cycles, the modem must be configured **once** via the serial console with the factory default settings and then saved.

With the device powered up and connected directly to a PC with a serial cable, start up a terminal emulation program such as Windows HyperTerminal or similar application and select the corresponding COM port.

Configure the terminal emulation program with the following parameters:

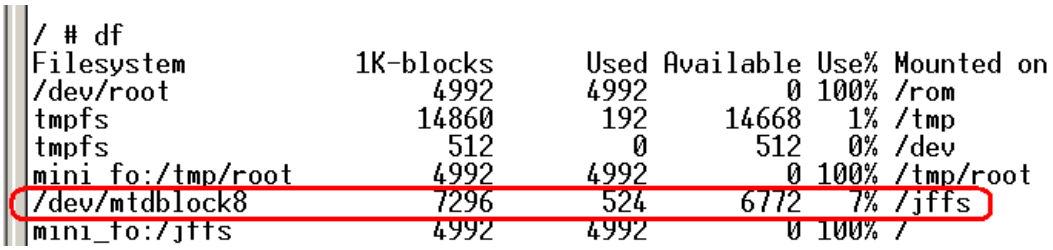
- Data rate: 115,200 baud
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: None

Note: The above settings are the device default settings

IMPORTANT - PLEASE PERFORM THIS STEP

For firmware upgrades from R1.2.X to R1.3.X and above, the modem must be left powered on for 5 minutes to complete the firmware upgrade. After 5 minutes, the following verification steps must be done *before* factory resetting the modem:

- Press the Enter key to return the **/ #** prompt.
- Verify that the firmware upgrade is complete by entering the command: **df**
- In the output of the **df** command, verify that the following highlighted line is present:



```
/ # df
Filesystem           1K-blocks      Used Available Use% Mounted on
/dev/root                 4992      4992         0 100% /rom
tmpfs                    14860       192     14668   1% /tmp
tmpfs                      512         0       512   0% /dev
mini_fo:/tmp/root         4992      4992         0 100% /tmp/root
/dev/mtdblock8            7296       524      6772   7% /jffs
mini_fo:/jffs             4992      4992         0 100% /
```

To verify the upgraded firmware version, enter the command: **cmd ver**

For upgrades to firmware versions below R1.3.0.1705 including R1.1.X and R1.2.X:

- To factory reset a modem, enter the command: **cmd factory**
- To save the factory settings, enter the command **cmd save**

For upgrades to firmware versions R1.3.0.1705 and above:

- To factory reset an EVDO modem, enter the command: **cmd factory full**
- To factory reset an HSPA+ modem, enter the command: **cmd factory full gsm**
- To factory reset a wi-fi modem, enter the command: **cmd factory full wifi**
- The factory settings will be saved at the end of each of the above commands.

You have successfully completed the firmware upgrade. Now, you can reconfigure your modem using any method of your choice:

- Serial console
- Telnet
- Web
- SSH (R1.3.X and above only)
- ULCP ***Download Script Files*** message (R1.3.X and above only)
- **cmd confupgrade** issued from serial console, Telnet, SSH, or ULCP ***Download Script Files*** message

6 Technical Support/Warranty

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